

JAPANESE

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CLAIMS DETAILED DESCRIPTION TECHNICAL
FIELD PRIOR ART EFFECT OF THE INVENTION
TECHNICAL PROBLEM MEANS DESCRIPTION OF
DRAWINGS DRAWINGS

[Translation done.]

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DETAILED DESCRIPTION

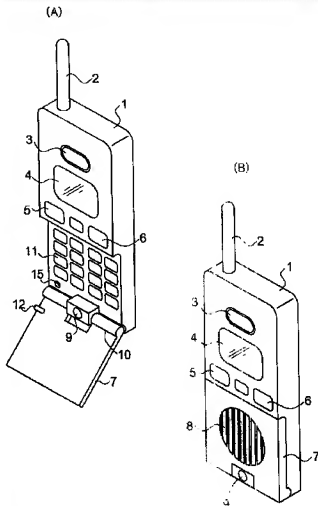
[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to improvement of the installed position in the portable telephone of the loudspeaker for handsfree which realizes a clear telephone call especially about the portable telephone which has the handsfree (handsfree) function to talk over the telephone without having a portable telephone in a hand.

[0002]

[Description of the Prior Art] Conventionally, the portable telephone which has a handsfree function was formed in the rear face instead of a transverse plane of the portable telephone body which has a liquid crystal display section and a final controlling element for the loudspeaker for handsfree from the restrictions on the space of a portable telephone. When it is going to use a portable telephone

Drawing selection **Representative draw**

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system especially as what is called a TV phone that delivers and receives picture information, it is desirable to enlarge said liquid crystal display section further, and, in this case, it is not avoided that the restrictions on the space of a portable telephone become still larger.

[0003]

[Problem(s) to be Solved by the Invention]However, since the direction of output power of sound would serve as an operator in an opposite hand if the loudspeaker for handsfree is provided in the rear face of the portable telephone, the directivity of the receiver sound spread back and SUBJECT that an articulation score fell occurred.

[0004]This invention solves SUBJECT mentioned above, and even if it is the portable telephone with which the large-sized liquid crystal display section was provided in order to use as a portable telephone only with the area of the limited transverse plane, especially a TV phone, it aims at providing the clear portable telephone of a receiver sound.

[0005]

[Means for Solving the Problem]A viewing area in which a portable telephone of this invention which solves an aforementioned problem has an indicator (4), A sound source region which has a handsfree loudspeaker (8) which outputs a sound at the time of handsfree use, It has an operation area where two or more operation keys (11) have been arranged, and a case (1) or this case is attached to these viewing areas, a sound source region, or an operation area by wrap covering device (7) switchable as the state where it lapped with other either, and the state of lapping with neither. In drawing 1, have the operation key 11 at the front of the case 1, and specifically. Are a portable telephone which has the loudspeaker 8 for handsfree, form said loudspeaker 8 for handsfree in the wrap covering device 7, and said operation key 11. Said loudspeaker 8 for handsfree was constituted so that said covering device 7 might be in a wrap state and might be located in a transverse plane of said case 1 in said operation key 11.

[0006]In a device constituted in this way, said covering device 7 of the loudspeaker 8 for handsfree is in a wrap state about said operation key 11, Since it is constituted so that it may be located in a transverse plane of said case 1, when reproducing a receiver sound by the loudspeaker 8 for handsfree, output power of sound is made towards a direction in which a receiver person's ear is usually located by a handsfree state. Therefore, a receiver sound is

reproduced clearly.

[0007]The covering device 7 of a portable telephone of this invention is good also as composition attached by the hinge 10 to said case 1, and good also as composition attached by a sliding mechanism which slides along a transverse plane of said case 1.

[0008]The receiver loudspeaker 3 by which a portable telephone of this invention was formed in a transverse plane of said case 1, Whether said covering device 7 is in the 2nd state of opening said operation key 11 to a range which is in the 1st state of a wrap, or can operate said operation key 11, and the mode primary detecting elements 12 and 13 which detect, It had composition possessing the loudspeaker switch part 16 which reproduces a receiver sound by said loudspeaker 8 for handsfree when the 1st state is detected in these mode primary detecting elements 12 and 13, and reproduces a receiver sound by said receiver loudspeaker 3 when the 2nd state is detected.

[0009]It is the covering device's 7 reproducing a receiver sound for the operation key 11 by the loudspeaker 8 for handsfree in the state of a wrap, and reproducing a receiver sound by the receiver loudspeaker 3 in a device constituted in this way, in the state of opening to a range which can operate the operation key 11, An automatic switchover with a portable telephone can usually be performed with handsfree.

[0010]

[Embodiment of the Invention]Hereafter, an embodiment of the invention is described using Drawings. Drawing 1 is a composition perspective view explaining a 1st embodiment of this invention, and, as for the state where (A) opens the covering device 7 and the operation key 11 can be operated, and (B), the covering device 7 shows the wrap state for the operation key 11. This portable telephone is provided with the handsfree talking function, and can talk over the telephone by a full duplex or half duplex. In the figure, the case 1 is carrying out the approximately rectangle, have the antenna 2 in an upside surface, and it has the receiver loudspeaker 3, the liquid crystal display section 4, the speaking key 5, the clear back key 6, the operation key 11, and the microphone 9 at the front, and the hinge 10 which supports the covering device 7 pivotally is formed in the transverse-plane lower end part. In the covering device 7, the pin 12 is formed in the operation key 11 and the field which counters, and the loudspeaker 8 for handsfree is

formed in the field which appears in a case transverse plane where the operation key 11 is covered with the covering device 7. The small hole 15 which engages with the pin 12 after the covering device 7 has covered the operation key 11 is formed in the lower left edge of the case 1 to which the operation key 11 was attached.

[0011]The antenna 2 communicates by the electric wave of a specific frequency band between a portable telephone and a base station. The receiver loudspeaker 3 generates volume suitable for usually reproducing a receiver sound as a portable telephone. The liquid crystal display section 4 displays the partner point telephone number in the case of the telephone number and receipt which were inputted by the operation key 11. When the speaking key 5 starts a telephone call with a portable telephone, a call person presses it. When the clear back key 6 closes a telephone call, a call person presses it. The covering device 7 is opened to the state where the operation key 11 can be closed in the wrap state, or the operation key 11 can be operated.

[0012]The loudspeaker 8 for handsfree generates volume suitable for reproducing a receiver sound as handsfree portable apparatus, and outputs big volume as compared with the receiver loudspeaker 3. The microphone 9 changes into an electrical signal the sound which a call person utters, and has always turned to the transverse plane irrespective of opening and closing of the covering device 7. The hinge 10 supports the covering device 7 pivotally to the main part 1, enabling free opening and closing. The operation key 11 has the numerical keypad and the key for control which input a call-destinations telephone number, and four-line a total of 16 keys of four rows are arranged here. The covering device 7 is opening the operation key 11 to the wrap state and the state where the operation key 11 can be operated, or the pin 12 and the small hole 15 detect it.

[0013]Drawing 2 shows the mechanism in which are an important section sectional view of the device of drawing 1, and it is detected whether the covering device 7 is opening the operation key 11 to the wrap state and the state where the operation key 11 can be operated. In the figure, the key operation section case 14 is the field in which the operation key 11 was formed, and has the small hole 15. The switch 13 is formed in key operation section case 14 inside of the small hole 15, is a thing and outputs an ON-and-OFF signal according to whether it is pushed by the pin 12. According to the ON-and-OFF signal sent from the switch 13, the

covering device 7 chooses the loudspeaker 8 for handsfree for the operation key 11 in the state of a wrap, and the loudspeaker switch part 16 chooses the receiver loudspeaker 3, when open in the state where the covering device 7 can operate the operation key 11.

[0014]Operation of the device constituted in this way is explained below. First, the operation at the time of receipt is explained. If the covering device 7 receives a call for the operation key 11 in the state of a wrap at the time of standby, a call person will do the depression of the speaking key 5. Then, the loudspeaker 8 for handsfree is chosen by the loudspeaker switch part 16, receipt is carried out by a handsfree state, a sound can be heard from the loudspeaker 8 for handsfree, and a sound cannot be heard from the receiver loudspeaker 3. In this state, if the covering device 7 is opened, receipt will be carried out by the usual talk state, a sound can be heard from the receiver loudspeaker 3, and the sound from the loudspeaker 8 for handsfree stops.

[0015]Next, if a call is received at the time of standby when the covering device 7 is open in the state where the operation key 11 can be operated, a call person will do the depression of the speaking key 5. Then, the receiver loudspeaker 3 is chosen by the loudspeaker switch part 16, receipt is carried out by the usual talk state, a sound can be heard from the receiver loudspeaker 3, and a sound cannot be heard from the loudspeaker 8 for handsfree. In this state, if the covering device 7 is closed, receipt will be carried out by a handsfree state, a sound can be heard from the loudspeaker 8 for handsfree, and the sound from the receiver loudspeaker 3 stops.

[0016]Next, the operation under telephone call is explained. If the covering device 7 is opened during a telephone call by a handsfree state, it will shift to the usual talk state. On the contrary, if the covering device 7 is closed during a telephone call by the usual talk state, it will shift to the talk state of a handsfree state. Next, the operation at the time of clear back is explained. Even if it is a handsfree state or the usual talk state, clear back will be carried out if the depression of the clear back key 6 is carried out.

[0017]Next, the operation at the time of call origination is explained. If either when the covering device 7 is opening the operation key 11 to the wrap state and the state where the operation key 11 can be operated carries out the depression of the speaking key 5 at the time of standby, call origination of it will be carried out.

[0018]Drawing 3 is a composition perspective view explaining a 2nd embodiment of this invention. If the component which is different from drawing 1 is explained, it will replace with the covering device 7 of the sliding type using the hinge 10, and the sliding type covering device 17 of a sliding type will be formed. The sliding type covering device 17 slides on the longitudinal direction in transverse plane of a case along the guide rail 18 established in the side of the case 1, and the loudspeaker 8 for handsfree is formed.

[0019]In the device constituted in this way, in the state of a wrap, the loudspeaker 8 for handsfree is chosen for the sliding type covering device 17 in the operation key 11, and when open in the state where the sliding type covering device 17 can operate the operation key 11, the receiver loudspeaker 3 is chosen. When the sliding type covering device 17 is open in the state where the operation key 11 can be operated and it is constituted so that the sliding type covering device 17 may cover the receiver loudspeaker 3, it is good also as composition which makes volume of the loudspeaker 8 for handsfree small to the volume of a receiver loudspeaker three-phase-circuit this.

[0020]Although the composition which detects detection of in which [when the covering device is opening the operation key to the wrap state and the state where an operation key can be operated in the embodiment shown in drawing 1] to be using a pin and a switch was shown, This invention is not limited to this and just detects the physical relationship of a covering device and an operation key like proximity switches, such as optical types, such as a photocoupler, and an electric capacity type.

[0021]Although the composition of the portable telephone only for a sound was shown in the above-mentioned embodiment, this invention is not limited to this and may be used for the portable telephone for TV phones. In the portable telephone for TV phones, it replaces with the receiver loudspeaker 3, a camera is installed, a call partner's image is displayed on the liquid crystal display section 4, and a call partner's sound is uttered from the loudspeaker 8 for handsfree.

[0022]Since it has digital transmission speed of 32k bps with PHS (Personal Handyphone System) in the case of the portable telephone for TV phones, if 8k bps is assigned to speech information, 24k bps can be assigned to picture information. Since picture transmission of two screens can be performed in 1 second in the case of 24k bps, if

commercial television broadcasting takes that they are 30 screens into consideration in 1 second, it will be equal to the practical use as a TV phone. In the case of the portable telephone for TV phones, here as compared with the conventional portable telephone for sounds. Since it is difficult to provide the loudspeaker for handsfree in the transverse plane of a portable telephone body inevitably in the portable telephone whose liquid crystal display section of the big screen for a CCD camera or image display is needed and which has only a limited area, It is very effective to install the loudspeaker for handsfree in the covering device of the portable telephone for TV phones like this embodiment.

[0023]

[Effect of the Invention]As explained above, according to the portable telephone of this invention, the covering device of the loudspeaker for handsfree is in a wrap state about an operation key. Since it is constituted so that it may be located in the transverse plane of a case and output power of sound is made towards the direction in which a receiver person's ear is usually located by a handsfree state, when reproducing a receiver sound by the loudspeaker for handsfree, It is effective in a receiver sound being reproduced clearly, it uses for the portable telephone which carries many functions in an especially limited area, and is suitable. A handsfree telephone call and the usual telephone call can be chosen by opening and closing of the covering device which constitutes some telephone set cases, and there is a characteristic effect that a call person's operation becomes simple.

[Translation done.]